#### SEQUENCE LISTING

- (1) GENERAL INFORMATION:
  - (i) APPLICANT: Andrew C. Braisted
    J. Kevin Judice
    Robert S. McDowell
    J. Christopher Phelan
    Melissa A. Starovasnik
    James A. Wells
- (ii) TITLE OF INVENTION: Constrained Helical Peptides and Methods of Making Same

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- (iii) NUMBER OF SEQUENCES: 113
  - (iv) CORRESPONDENCE ADDRESS:
    - (A) ADDRESSEE: Genentech, Inc.
    - (B) STREET: 1 DNA Way
    - (C) CITY: South San Francisco
    - (D) STATE: California
    - (E) COUNTRY: USA
    - (F) ZIP: 94080
    - (v) COMPUTER READABLE FORM:
      - (A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
      - (B) COMPUTER: IBM PC compatible
      - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
      - (D) SOFTWARE: WinPatin (Genentech)
  - (vi) CURRENT APPLICATION DATA:
    - (A) APPLICATION NUMBER: Unassigned
    - (B) FILING DATE: 05-Nov-1997
    - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Torchia, PhD., Timothy E.
  - (B) REGISTRATION NUMBER: 36,700
  - (C) REFERENCE/DOCKET NUMBER: P1005R2
  - (ix) TELECOMMUNICATION INFORMATION:
    - (A) TELEPHONE: 650/225-8674
    - (B) TELEFAX: 650/952-9881
- (2) INFORMATION FOR SEQ ID NO:1:

	SEQUENCE (A) LENGY (B) TYPE (D) TOPOR MOLECULE	TH: 36 : Amin LOGY:	ami o Ac Line	no a id ar		3						
(xi)	SEQUENCE	DESCR	ĮPTI	ON:	SEQ	ID N	10:1:	:				
Tyr T	hr Ser Le	u Ile 5	His	Ser	Leu	Ile	Glu 10	Glu	Ser	Gln	Asn	Gln 15
Gln G	lu Lys Ası	n Glu 20	Gln	Glu	Leu	Leu	Glu 25	Leu	Asp	Lys	Trp	Ala 30
Ser L	eu Trp Ası	n Trp 35	Phe 36									
(2) IN	FORMATION	FOR S	EQ 1	D NO	0:2:							
(i)	SEQUENCE (A) LENG' (B) TYPE (D) TOPO	TH: 27 : Amin	ami	ino a		5						
( <b>v</b> i)												
(XI)	SEQUENCE	DESCR	IPTI	ON:	SEQ	ID 1	10:2	:				
	SEQUENCE hr Ser Le								Ser	Gln	Asn	Gln 15
Tyr T		u Ile 5	His	Ser	Leu	Ile	Glu 10	Glu		Gln	Asn	
Tyr T 1 Gln G	hr Ser Le	u Ile 5 n Glu 20	His Gln	Ser Glu	Leu Leu	Ile	Glu 10 Glu	Glu	Asp	Gln	Asn	
Tyr T 1 Gln G (2) IN	hr Ser Le	u Ile 5 n Glu 20 FOR S CHARA TH: 27	Gln GEQ ACTER ami	Ser Glu ID NO RIST: ino a	Leu Leu D:3:	Ile Leu	Glu 10 Glu	Glu	Asp	Gln	Asn	
Tyr T  1  Gln G  (2) IN  (i)	hr Ser Len lu Lys Ass FORMATION SEQUENCE (A) LENG (B) TYPE	u Ile 5 n Glu 20 FOR S CHARA TH: 27 : Amin	Gln GEQ CTER Cami	Ser Glu ID NO RIST: ino a cid ear	Leu Leu D:3: ICS: acids	Ile Leu	Glu 10 Glu 25	Glu	Asp	Gln	Asn	

Gln Xaa Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp

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- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 27 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Tyr Thr Xaa Leu Ile His Ser Leu Ile Xaa Glu Ser Gln Asn Gln
1 5 10 15

Gln Xaa Lys Asn Glu Gln Glu Leu Xaa Glu Leu Asp 20 25 27

- (2) INFORMATION FOR SEQ ID NO:5:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 27 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Tyr Thr Ser Leu Ile His Ser Xaa Ile Glu Glu Ser Gln Asn Xaa 1 5 10 15

Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp 20 25 27

- (2) INFORMATION FOR SEQ ID NO:6:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Xaa Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Xaa Xaa Ile Trp Xaa Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Xaa Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Xaa Ile Thr Asn Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg 

Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Xaa Leu Pro Ala Pro 245 250 255

Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 260 265 269

- (2) INFORMATION FOR SEQ ID NO:7:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (ii) MOLECULE TYPE: HIV-JRCSF
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 65 70 75

Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
95 100 105

Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln
110 115 120

Gln Leu Met Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 135

Thr Ala Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Asp 140 145 150

Ser	Ile	Trp	Asn	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Glu	Lys	Glu	Ile 165
Glu	Asn	Tyr	Thr	Asn 170	Thr	Ile	Tyr	Thr	Leu 175	Ile	Glu	Glu	Ser	Gln 180
Ile	Gln	Gln	Glu	Lys 185	Asn	Glu	Gln	Glu	Leu 190	Leu	Glu	Leu	Asp	Lys 195
Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Gly	Ile 205	Thr	Lys	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Met	Ile	Val	Gly 220	Gly	Leu	Ile	Gly	Leu 225
Arg	Ile	Val	Phe	Ser 230	Val	Leu	Ser	Ile	Val 235	Asn	Arg	Val	Arg	Gln 240
Gly	Tyr	Ser	Pro	Leu 245	Ser	Phe	Gln	Thr	Leu 250	Leu	Pro	Ala	Thr	Arg 255
Gly	Pro	Asp	Arg	Pro 260	Glu	Gly	Ile	Glu	Glu 265	Glu	Gly	Gly 268		
2) 1	NEO	ייי א אכ	TON I	ZOD (	EFO :	ED NO	١.٥.							

- (2) INFORMATION FOR SEQ ID NO:8:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 15

  Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 30

  Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile 35

  Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50

Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln Arg Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gly Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp Arg Ile Trp Asn Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Glu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Leu Val Phe Thr Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Leu Pro Ala Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly 

#### (2) INFORMATION FOR SEQ ID NO:9:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 268 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

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# (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Gly 1	Gly	Gly	Asp	Met 5	Arg	Asp	Asn	Trp	Arg 10	Ser	Glu	Leu	Tyr	Lys 15
Tyr	Lys	Val	Val	Lys 20	Ile	Glu	Pro	Leu	Gly 25	Val	Ala	Pro	Thr	Arg 30
Ala	Lys	Arg	Arg	Val 35	Val	Gln	Arg	Glu	Lys 40	Arg	Ala	Val	Gly	Leu 45
Gly	Ala	Leu	Phe	Leu 50	Gly	Phe	Leu	Gly	Ala 55	Ala	Gly	Ser	Thr	Met 60
Gly	Ala	Arg	Ser	Met 65	Thr	Leu	Thr	Val	Gln 70	Ala	Arg	Gln	Leu	Leu 75
Ser	Gly	Ile	Val	Gln 80	Gln	Gln	Asn	Asn	Leu 85	Leu	Arg	Ala	Ile	Glu 90
Ala	Gln	Gln	His	Leu 95	Leu	Gln	Leu	Thr	Val	Trp	Gly	Ile	Lys	Gln 105
Leu	Gln	Ala	Arg	Val	Leu	Ala	Val	Glu	Arg 115	Tyr	Leu	Arg	Asp	Gln 120
Gln	Leu	Leu	Glu	Ile 125	Trp	Gly	Cys	Ser	Gly 130	Lys	Leu	Ile	Cys	Thr 135
Thr	Thr	Val	Pro	Trp 140	Asn	Ala	Ser	Trp	Ser 145	Asn	Lys	Ser	Leu	Asn 150
Gln	Ile	Trp	Asp	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Glu	Arg	Glu	Ile 165
Asp	Asn	Tyr	Thr		Leu	Ile	Tyr	Thr		Ile	Glu	Glu	Ser	
Asn	Gln	Gln	Glu	Lys	Asn	Glu	Gln	Glu	Leu	Leu	Glu	Leu	Asp	Lys

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Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Asn	11e 205	Thr	Asn	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Met	Ile	Val	Gly 220	Gly	Leu	Val	Gly	Leu 225
Arg	Ile	Val	Phe	Ser 230	Val	Leu	Ser	Ile	Val 235	Asn	Arg	Val	Arg	Gln 240
Gly	Tyr	Ser	Pro	Leu 245	Ser	Phe	Gln	Thr	Arg 250	Leu	Pro	Ala	Arg	Arg 255
Glu	Pro	Asp	Arg	Pro 260	Glu	Gly	Ile	Glu	Glu 265	Glu	Gly	Gly 268		

- (2) INFORMATION FOR SEQ ID NO:10:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

95

Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 30 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Leu 45 35 Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 55 60 Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Leu Leu Leu 70 75 65 Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Met Ala Ile Glu 90 80 85 Ala Gln Gln His Met Leu Glu Leu Thr Val Trp Gly Ile Lys Gln

100

Leu	Gln	Ala	Arg	Val 110	Leu	Ala	Val	Glu	Arg 115	Tyr	Leu	Lys	Asp	Gln 120
Gln	Leu	Leu	Gly	Ile 125	Trp	Gly	Cys	Ser	Gly 130	Lys	Leu	Ile	Cys	Thr 135
Thr	Ala	Val	Pro	Trp 140	Asn	Ala	Ser	Trp	Ser 145	Asn	Lys	Ser	Leu	Ser 150
Asp	Ile	Trp	Asp	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Glu	Arg	Glu	Ile 165
Asp	Asn	Tyr	Thr	Asn 170	Leu	Ile	Tyr	Ser	Leu 175	Ile	Glu	Asp	Ser	Gln 180
Ile	Gln	Gln	Glu	Lys 185	Asn	Glu	Lys	Glu	Leu 190	Leu	Glú	Leu	Asp	Lys 195
Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Asn	Ile 205	Thr	Asn	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Met	Ile	Val	Gly 220	Gly	Leu	Ile	Gly	Leu 225
Arg	Ile	Val	Phe	Ala 230	Val	Leu	Ser	Ile	Val 235	Asn	Arg	Val	Arg	Gln 240
Gly	Tyr	Ser	Pro	Leu 245	Ser	Phe	Gln	Thr	Arg 250	Leu	Pro	Gly	Arg	Arg 255
Gly	Pro	Asp	Arg	Pro 260	Glu	Gly	Ile	Glu	Glu 265	Glu	Gly	Gly 268		

# (2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 267 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:
- Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Lys Ile Glu Leu Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Gly Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Glu Ile Trp Asp Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Gly Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Thr Ile Thr Asn Trp Leu Trp Tyr Ile Arg Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Thr Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly 

Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Pro Arg Gly
245 250 255

Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly
260 265 267

- (2) INFORMATION FOR SEQ ID NO:12:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 5 10 15 Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 25 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr 35 40 Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Thr Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu 65 70 Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arq Ala Ile 80 85 Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105 Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp 110 115 120 Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135

Thr Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu

145

150

Asp	Lys	Ile	Trp	Gly 155	Asn	Met	Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile	Asp	Asn	Tyr	Thr 170	Ser	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Glu	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Lyŝ	Asn	Glu	Gln	Glu 190	Leu	Leu	Glu	Leu	Asp 195
Lys	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Asn 205	Ile	Thr	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Val	Gly 225
Leu	Arg	Ile	Val	Phe 230	Thr	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Arg	Leu	Pro	Ser	Gln 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:13:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
  35 40 45
- Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60

Gly Ala Ala Met Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arq Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asn Lys Ile Trp Asp Asn Met Thr Trp Ile Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Ile Ile Tyr Ser Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu Arg Ile Val Phe Ser Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Ser Ser Arg Gly Pro Asp Arg Pro Gly Gly Ile Glu Glu Gly Gly 

- (2) INFORMATION FOR SEQ ID NO:14:
  - (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 268 amino acids

(B) TYPE: Amino Acid

(D) TOPOLOGY: Linear

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 10 Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 25 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Leu 40 Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 65 Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 105 95 100 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln 115 120 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 130 135 125 Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Asn 150 140 145 Glu Ile Trp Asp Asn Met Thr Trp Met Lys Trp Glu Arg Glu Ile 160 165 155 Asp Asn Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln 180 175 170 Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Ala Leu Asp Lys

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Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Lys Trp Leu Trp 200 205 210 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Leu Ile Gly Leu 220 215 Arg Ile Val Phe Val Val Leu Ser Ile Val Asn Arg Val Arg Gln 230 235 240 Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Ala Gln Arg 245 250 255 Gly Pro Asp Arg Pro Asp Gly Ile Glu Glu Glu Gly Gly 265 268 260

- (2) INFORMATION FOR SEQ ID NO:15:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 267 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

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Tyr Lys Val Val Thr Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Ala Ile Gly
35 40 45

Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly
50 55 60

Ala Ala Ser Val Thr Leu Thr Val Gln Ala Arg Leu Leu Ser
65 70 75

Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala 80 85 90

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu
95 100 105

Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Phe Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp Asp Ile Trp Asn Asn Met Thr Trp Met Gln Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Ser Leu Leu Glu Lys Ser Gln Thr Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Asn Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Leu Gln Thr Arg Pro Pro Val Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 

#### (2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 268 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp Asn His Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys Leu Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln

Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Thr Pro Arg 245 250 255

Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 260 265 268

- (2) INFORMATION FOR SEQ ID NO:17:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
65 70 75

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
95 100 105

Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln
110 115 120

Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 135

Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu 140 145 150

Gln	Ile	Trp	Asn	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Asp	Arg	Glu	Ile 165
Asn	Asn	Tyr	Thr	Ser 170	Leu	Ile	His	Ser	Leu 175	Ile	Glu	Glu	Ser	Gln 180
Asn	Gln	Gln	Glu	Lys 185	Asn	Glu	Gln	Glu	Leu 190	Leu	Glu	Leu	Asp	Lys 195
Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Asn	Ile 205	Thr	Asn	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Met	Ile	Val	Gly 220	Gly	Leu	Val	Gly	Leu 225
Arg	Ile	Val	Phe	Ala 230	Val	Leu	Ser	Ile	Val 235	Asn	Arg	Val	Arg	Gln 240
Gly	Tyr	Ser	Pro	Leu 245	Ser	Phe	Gln	Thr	His 250	Leu	Pro	Thr	Pro	Arg 255
Gly	Pro	Asp	Arg	Pro 260	Glu	Gly	Ile	Glu	Glu 265	Glu	Gly	Gly 268		

- (2) INFORMATION FOR SEQ ID NO:18:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
  35 40 45
- Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 55 60

Gly Cys Thr Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Asp Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys Leu Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Ile Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 

### (2) INFORMATION FOR SEQ ID NO:19:

# (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 268 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

(X1	., 36	QUEI	VCE L	ESCr	(1111	.014.	SEQ	10 1		•	,			
Gly 1	Gly	Gly	Asp	Met 5	Arg	Asp	Àsń	Trp	Arg 10	Ser	Glu	Leu	Tyr	Lys 15
Tyr	Lys	Val	Val	Lys 20	Ile	Glu	Thr	Leu	Gly 25	Val	Ala	Pro	Thr	Lys 30
Ala	Lys	Arg	Arg	Val 35	Val	Gln	Arg	Glu	Lys 40	Arg	Ala	Val	Gly	Ile 45
Gly	Ala	Leu	Phe	Leu 50	Gly	Phe	Leu	Gly	Ala 55	Ala	Gly	Ser	Thr	Met 60
Gly	Ala	Ala	Ser	Met 65	Thr	Leu	Thr	Val	Gln 70	Ala	Arg	Gln	Leu	Leu 75
Ser	Gly	Ile	Val	Gln 80	Gln	Gln	Asn	Asn	Leu 85	Leu	Arg	Ala	Ile	Glu 90
Ala	Gln	Gln	His	Leu 95	Leu	Gln	Leu	Thr	Val 100	Trp	Gly	Ile	Lys	Gln 105
Leu	Gln	Ala	Arg	Ile 110	Leu	Ala	Val	Glu	Arg 115	Tyr	Leu	Lys	Asp	Gln 120
Gln	Leu	Leu	Gly	Ile 125	Trp	Gly	Cys	Ser	Gly 130	Lys	Leu	Ile	Cys	Thr 135
Thr	Ala	Val	Pro	Trp 140	Asn	Ala	Ser	Trp	Ser 145	Asn	Lys	Ser	Leu	Glu 150
Gln	Pḥe	Trp	Asn	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Asp	Arg	Glu	Ile 165
Asn	Asn	Tyr	Thr	Ser 170	Leu	Ile	His	Ser	Leu 175	Ile	Asp	Glu	Ser	Gln 180
Asn	Gln	Gln	Glu	Lys	Asn	Glu	Gln	Glu	Leu	Leu	Glu	Leu	Asp	Lys

190

Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Asn	Ile 205	Thr	Asn	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Met	Ile	Val	Gly 220	Gly	Leu	Val	Gly	Leu 225
Ārg	Ile	Val	Phe	Ala 230	Val	Leu	Ser	Ile	Val 235	Asn	Arg	Val	Arg	Glr 240
Gly	Tyr	Ser	Pro	Leu 245	Ser	Phe	Gln	Thr	His 250	Leu	Pro	Asn	Arg	Gly 255
Gly	Pro	Asp	Arg	Pro 260	Glu	Gly	Ile	Glu	Glu 265		Gly	Gly 268		

- (2) INFORMATION FOR SEQ ID NO:20:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ala
  35 40 45
- Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
  50 55 60
- Met Gly Ala Val Ala Leu Thr Leu Thr Val Gln Thr Arg Gln Leu 65 70 75
- Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile 80 85 90
- Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105

Gln	Leu	Gln	Ala	Arg 110	Val	Leu	Ala	Val	Glu 115	Arg	Tyr	Leu	Lys	Asp 120
Gln	Gln	Leu	Leu	Gly 125	Ile <sup>°</sup>	Trp	Gly	Cys	Ser 130	Gly	Lys	Leu	Ile	Cys 135
Thr	Thr	Ala	Val	Pro 140	Trp	Asn	Ala	Ser	Trp 145	Ser	Asn	Ĺys	Ser	Leu 150
Asp	Lys	Ile	Trp	Asn 155	Asn	Met	Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile	Asp	Asn	Tyr	Thr 170	Asn	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Glu	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Lys	Asn	Glu	Lys	Asp 190	Leu	Leu	Glu	Leu	Asp 195
Thr	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Asp 205	Ile	Thr	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Ile 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Arg	Ile	Val	Phe 230	Thr	Ile	Leu	Ser	Leu 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Arg	Phe	Pro	Val	Pro 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

# (2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 269 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ala Leu Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Ala Leu Thr Val Gln Thr Arg Gln Leu Met Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Lys Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Arg Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp Lys Ile Trp Asp Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Ile Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu Arg Ile Val Phe Thr Val Leu Ser Ile Val Asn Arg Val Arg

Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Gln

Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly 269 265

- (2) INFORMATION FOR SEQ ID NO:22:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 10 5 Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 25 20 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr

35 Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr

40

Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Leu Leu 70

Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile 90 85

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 105 95 100

Gln Leu Gln Ala Arg Val Leu Ala Leu Glu Arg Tyr Leu Arg Asp 110 115 120

Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 135 130 125

Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Thr Leu 145 150 140

Asp	Met	Ile	Trp	Asp 155	Asn	Met	Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile	Glu	Asn	Tyr	Thr 170	Gly	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Glu	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Lys	Asn	Glu	Gln	Asp 190	Leu	Leu	Ala	Leu	Asp 195
Lys	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Asp 205	Ile	Ser	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Arg	Ile	Val	Phe 230	Thr	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	His	Leu	Pro	Ala	Pro 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:23:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:
- Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Lys Leu Tyr Lys

  1 5 10 15

  The Lys Mal Mal Lys Lle Gly Pro Ley Gly Mal Ala Pro Thr Lys
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Lys Lys Arg Ala Val Gly Thr
  35 40 45
- Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 50 55 60

Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gln Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp Glu Ile Xaa Asn Asn Met Thr Trp Met Gln Trp Glu Arg Glu Ile Ser Asn Tyr Thr Ser Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Leu Glu Leu Glu Leu Asp Lys Trp Ala Ser Leu Xaa Asn Trp Phe Asp Ile Thr Asn Trp Leu Trp Ser Ile Lys Ile Phe Ile Met Ile Val Ala Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Thr Pro Arg Gly Pro Asp Arg Pro Gly Gly Ile Glu Glu Gly Gly 

#### (2) INFORMATION FOR SEQ ID NO:24:

### (i) SEQUENCE CHARACTERISTICS:

℧.

(A) LENGTH: 269 amino acids

(B) TYPE: Amino Acid

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Leu Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Val Cys Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asn Gln Ile Trp Asp Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Leu Ile Tyr Arg Leu Ile Glu Glu Ser 

Gln Asn Gln Gln Glu Gln Asn Glu Gln Asp Leu Lys Leu Asp

Thr	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Ser 205	Ile	Thr	Lys	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Arg	Ile	Ile	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Leu	Leu	Pro	Ala	Pro 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:25:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids

95

- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

100

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp 115 Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 130 Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Met 150 Asp Met Ile Trp Asn Asn Met Thr Trp Met Glu Trp Glu Arg Glu 155 160 165 Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Thr Leu Ile Glu Glu Ser 170 175 Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asn 190 195 185 Lys Trp Glu Asn Leu Trp Ser Trp Phe Asp Ile Ser Asn Trp Leu 205 210 200 Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly 220 225 215 Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Ser Val Arg 235 230 Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Pro 250 245 Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly 265 269 260

### (2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 268 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Thr Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Arg Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Asn Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Ser Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Thr Val Leu Ser Ile Val Asn Arg Val Arg Gln

Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Phe Pro Ala Pro Arg 245 250 255

Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 260 265 268

- (2) INFORMATION FOR SEQ ID NO:27:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 267 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Ala Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 15 10 5 Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 30 25 20 Ala Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Met 45 40 Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 50 55 Met Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu 70 Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 105 Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp 120 110 115

Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys
125
130
135

Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu 140 145 150

Asn	Glu	Ile	Trp	Asp 155	Asn	Met	Thr	Trp	Met 160	Gln	Trp	Glu	Arg	Glu 165
Ile	Asp	Asn	Tyr	Thr 170	His	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Glu	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Lys	Asn	Glu	Gln	Glu 190	Leu	Leu	Glu	Leu	Asp 195
Lys	Trp	Leu	Trp	Ser 200	Trp	Phe	Ser	Ile	Thr 205	Asn	Trp	Leu	Trp	Tyr 210
Ile	Arg	Ile	Phe	Ile 215	Ile	Ile	Val	Gly	Gly 220	Leu	Val	Gly	Leu	Arg 225
Ile	Val	Phe	Ala	Val 230	Leu	Ser	Ile	Val	Asn 235	Arg	Val	Arg	Gln	Gly 240
Tyr	Ser	Pro	Leu	Ser 245	Phe	Gln	Thr	Arg	Leu 250	Pro	Thr	Gln	Arg	Gly 255
Pro	Asp	Arg	Pro	Glu 260	Gly	Ile	Glu	Glu	Glu 265	Gly	Gly 267			

- (2) INFORMATION FOR SEQ ID NO:28:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

35

- Ala Gly Gly Asn Met Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys

  1 5 10 15

  Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Val

40

45

Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Lys Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Asp Lys Ile Trp Asn Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Thr Leu Leu Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Ser Ile Thr Asn Trp Leu Trp Tyr Ile Arg Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu Arg Ile Ile Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Ile Pro Ala Gln Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly Gly 

# (2) INFORMATION FOR SEQ ID NO:29:

### (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 269 amino acids

(B) TYPE: Amino Acid

(D) TOPOLOGY: Linear

185

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 25 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Met 35 40 Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 60 55 50 Met Gly Ala Thr Ser Met Ala Leu Thr Val Gln Ala Arg Gln Leu 75 70 65 Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile 85 80 Lys Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp 115 Gln Gln Leu Leu Gly Phe Trp Gly Cys Ser Gly Lys Leu Ile Cys 130 Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Thr Leu 150 145 Asp Gln Ile Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu 165 155 160 Ile Asp Asn Tyr Thr His Leu Ile Tyr Thr Leu Ile Glu Glu Ser 180 170 175 Gln Asn Gln Glu Lys Asn Gln Gln Glu Leu Leu Gln Leu Asp

190

Lys	Trp	Ala	Ser	Leu 200	Trp	Thr	Trp	Ser	Asp 205	Ile	Thr	Lys	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Arg	Ile	Val	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arc 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Leu	Leu	Pro	Asn	Pro 255
Arg	Gly	Pro	Asp	Arg		Glu	Gly				Gly		Gly	

- (2) INFORMATION FOR SEQ ID NO:30:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

95

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Ile Lys Ile Glu Pro Leu Gly Ile Ala Pro Thr Lys 20 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile 45 40 35 Val Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 60 Met Gly Ala Val Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu 70 75 65 Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile 85 80

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys

100

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp 110 Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu 150 Glu Asp Ile Trp Asp Asn Met Thr Trp Met Gln Trp Glu Arg Glu 160 155 165 Ile Asp Asn Tyr Thr Asn Thr Ile Tyr Thr Leu Leu Glu Glu Ser 180 170 175 Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp 190 195 185 Lys Trp Ala Ser Leu Trp Asn Trp Phe Ser Ile Thr Asn Trp Leu 205 210 200 Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly 225 220 215 Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg 235 230 Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Val Pro 250 245 Arg Gly Pro Asp Arg Pro Asp Gly Ile Glu Glu Gly Gly 269 265 260

## (2) INFORMATION FOR SEQ ID NO:31:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 269 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Ile Ala Pro Thr Lys Ala Lys Arq Arq Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Lys Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Met Glu Asp Ile Trp Asp Asn Met Thr Trp Met Gln Trp Glu Lys Glu Ile Asp Asn Tyr Thr Asn Thr Ile Tyr Thr Leu Leu Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Val Val Asn Arg Val Arg 

Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Thr Pro 245 250 255

Arg Gly Pro Asp Arg Pro Asp Gly Ile Glu Glu Glu Gly Gly 260 265 269

- (2) INFORMATION FOR SEQ ID NO:32:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Asn Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Met
35 40 45

Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Arg Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu 65 70 75

Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile 80 85 90

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys
95 100 105

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp 110 115 120

Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135

Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Thr Leu
140 145 150

Asp	Gln	Ile	Trp	Asn 155	Asn	Met	Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile	Asp	Asn	Tyr	Thr 170	Ser	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Gln	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Lys	Asn	Glu	Gln	Glu 190	Leu	Leu	Glu	Leu	Asp 195
Lys	Trp	Ala	Ser	Leu 200	Trp	Ser	Trp	Tyr	Asp 205	Ile	Ser	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Arg	Ile	Val	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Leu	Leu	Pro	Ala	Thr 255
Arg	Gly	Pro	Arg	Gln 260	Pro	Glu	Glu	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:33:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:
- Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr
  35 40 45
- Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
  50 55 60

Met Gly Ala Gly Ser Ile Thr Leu Thr Val Gln Ala Arg His Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asn Met Ile Trp Asn Asn Met Thr Trp Met Gln Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Ile Ile Tyr Asn Leu Leu Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Thr Gln Trp Leu Trp Tyr Ile Arg Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Lys Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Ala Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Gly Glu Gly Gly 

#### (2) INFORMATION FOR SEQ ID NO:34:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 269 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:
- Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 1 5 10 15
- Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr
  35 40 45
- Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
  50 55 60
- Met Gly Ala Gly Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu 65 70 75
- Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile 80 85 90
- Asp Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105
- Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp 110 115 120
- Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135
- Thr Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Met 140 145 150
- Asn Gln Ile Trp Asp Asn Leu Thr Trp Met Glu Trp Glu Arg Glu
  155 160 165
- Ile Asp Asn Tyr Thr Ser Ile Ile Tyr Ser Leu Ile Glu Glu Ser 170 175 180
- Gln Asn Gln Gln Gly Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp 185 190 195

Lys	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Asp 205	Ile	Thr	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Ārg	Ile	Val	Phe 230	Thr	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	His	Leu	Pro	Thr	Pro 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:35:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:
- Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Xaa Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Ala Ser Pro Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 60 50 Xaa Ala Ala Pro Thr Thr Leu Thr Val Gln Pro Arg Gln Leu Leu 75 65 Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 90 80 85 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 105 100 95

Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp 145 150 140 Glu Ile Trp Asn Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile 165 160 155 Asn Asn Tyr Thr Gly Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln 180 175 170 Xaa Gln Glu Lys Asn Glu Leu Asp Leu Glu Leu Asp Lys 185 190 195 Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Asn Xaa Leu Trp 205 200 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu 220 215 Arg Ile Ile Phe Thr Val Leu Ser Ile Val Asn Arg Val Arg Gln 235 230 Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Xaa Pro Arg 245 250 Gly Pro Asp Arg Pro Gly Gly Ile Glu Glu Gly Gly 265 260

## (2) INFORMATION FOR SEQ ID NO:36:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 269 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Ala Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gly Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Asp Asp Ile Trp Thr Asn Met Thr Trp Met Glu Trp Lys Arg Glu Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Arg Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Asp Ser Leu Trp Asn Trp Phe Thr Ile Ser Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Ala Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Lys Val Arg

Gln Gly Tyr Ser Pro Val Ser Phe Gln Thr Arg Leu Pro Ala Gln 245 250 255

Arg Gly Pro Asp Arg Pro Glu Glu Ile Glu Glu Glu Gly Gly 260 265 269

- (2) INFORMATION FOR SEQ ID NO:37:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Gly 1	Gly	Gly	Asp	Met 5	Arg	Asp	Asn	Trp	Arg 10	Ser	Glu	Leu	Tyr	Lys 15
Tyr	Lys	Val	Val	Lys 20	Ile	Glu	Pro	Leu	Gly 25	Val	Ala	Pro	Thr	Lys 30
Pro	Lys	Arg	Arg	Val 35	Val	Gln	Arg	Glu	Lys 40	Arg	Ala	Val	Gly	Thr 45
Ile	Gly	Ala	Met	Phe 50	Leu	Gly	Phe	Leu	Gly 55	Thr	Ala	Gly	Ser	Thr 60
Met	Gly	Ala	Ala	Ser 65	Ile	Thr	Leu	Thr	Val 70	Gln	Ala	Arg	Gln	Leu 75
				_	_		_							

Leu Ser Gly Ile Val Gln Gln Gln Arg Asn Leu Leu Arg Ala Ile 80 85 90

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp 110 115 120

Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135

Thr Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu 140 145 150

Asp	Lys	Ile	Trp	Asn 155	Asn	Met	Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile	Asp	Asn	Tyr	Thr 170	Arg	Glu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Glu	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Ľуs	Asn	Glu	Leu	Glu 190	Leu	Leu	Glu	Leu	Asp 195
Lys	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Asp 205		Thr	Lys	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Val	Gly 225
Leu	Arg	Ile	Val	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Leu	Gln	Thr 250	Arg	Phe	Pro	Ala	Gln 255
_	_		_	_								Gly		

- (2) INFORMATION FOR SEQ ID NO:38:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 267 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Ile Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
  35 40 45
- Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60

Gly Ala Ala Met Thr Leu Thr Val Gln Ala Arg Leu Leu Thr Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Lys Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Asp Lys Ile Trp Gly Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Thr Ile Thr Asn Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Leu Ile Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly 

- (2) INFORMATION FOR SEQ ID NO:39:
  - (i) SEQUENCE CHARACTERISTICS:

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- (A) LENGTH: 268 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:
- Gly Gly Gly Asp Met Arg Glu Asn Trp Arg Ser Glu Leu Tyr Lys 1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Phe
  35 40 45
- Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu Leu 65 70 75
- Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105
- Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln
  110 115 120
- Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 135
- Thr Asn Val Pro Trp Asn Lys Thr Trp Ser Asn Lys Ser Leu Asp 140 145 150
- Gln Ile Trp Gln Asn Met Thr Trp Met Gln Trp Glu Arg Glu Ile 155 160 165
- Asp Lys Tyr Thr Asp Val Ile Tyr Thr Leu Ile Gly Glu Ser Gln 170 175 180
- Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys 185 190 195

Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Gln Trp Leu Trp 205 210 200 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu 215 220 Arg Ile Val Phe Ser Val Leu Ser Ile Val Asn Arg Val Arg Gln 235 240 230 Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Ala Arg 250 255 245 Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly 260 265 268

- (2) INFORMATION FOR SEQ ID NO:40:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:
- Gly Gly Gly Asn Met Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys

  1 5 10 15
- Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Ala Gly Leu
  35 40 45
- Gly Val Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Ala Ser Ile Ala Leu Thr Val Gln Ala Arg Gln Leu Leu
  65 70 75
- Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105

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Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln 120 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 Thr Thr Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser His Asp 140 145 150 Gln Ile Trp Gln Asn Met Thr Trp Met Gln Trp Glu Lys Glu Ile 160 165 155 Asp Asn Tyr Thr Ser Leu Ile Tyr Asn Leu Ile Glu Val Ser Gln 175 180 170 Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys 185 195 190 Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Asn Trp Leu Trp 205 210 200 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu 215 220 Arg Ile Val Phe Ile Val Leu Ser Ile Val Asn Arg Val Arg Gln 235 Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Ala Arg Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly 260 265 268

# (2) INFORMATION FOR SEQ ID NO:41:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 268 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:
- Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Asp Gln Ile Trp Gly Asn Met Thr Trp Met Gln Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Ala Gly Leu Val Gly Leu Arg Val Val Phe Ile Val Leu Ser Ile Val Asn Arg Val Arg Gln

Gly Tyr Ser Pro Leu Ser Phe Gln Thr His His Pro Ala Leu Arg 245 250 255

Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 260 265 268

- (2) INFORMATION FOR SEQ ID NO:42:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile 35 40 45

Val Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu 65 70 75

Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile 80 85 90

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys
95 100 105

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp 110 115 120

Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135

Thr Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu 140 145 150 ₽\_

Ser	Glu	Ile	Trp	Asp 155	Asn	Met	Thr	Trp	Met 160	Gln	Trp	Glu	Arg	Glu 165
Ile	Asp	Asn	Tyr	Thr 170	Ser	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Glu	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Lys	Asn	Glu	Gln	Glu 190	Leu	Leu	Glu	Leu	Asp 195
Lys	Trp	Ala	Gly	Leu 200	Trp	Asn	Trp	Phe	Glu 205	Ile	Thr	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Val	Gly 225
Leu	Arg	Ile	Val	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Val	Ser	Phe	Gln	Thr 250	His	Leu	Pro	Ala	Pro 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	
2)		2842 TO	TON I	EOD (	ero ·	TD M	7.42							

- (2) INFORMATION FOR SEQ ID NO:43:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg 20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ala
  35 40 45
- Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 50 55 60

Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Glu Lys Ile Trp Asn Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Leu Ile Tyr Ser Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Asp Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Lys Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Leu Pro Ala Gln Arg Gly Pro Asp Arg Pro Gly Gly Ile Glu Glu Gly Gly 

#### (2) INFORMATION FOR SEQ ID NO:44:

#### (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 269 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

(XI) SEQUE	MCE DESC.	RIFIION.	OEQ	10 1		•				
Gly Gly Gly	Asp Met 5	Arg Asp	Asn	Trp	Arg 10	Ser	Glu	Leu	Tyr	Lys 15
Tyr Lys Val	. Val Lys 20	Ile Glu	Pro	Leu	Gly 25	Val	Ala	Pro	Thr	Lys 30
Ala Lys Lys	Arg Val	Val Gln	Arg	Glu	Lys 40	Arg	Ala	Val	Gly	Val 45
Leu Gly Ala	Met Phe 50	Leu Gly	Phe	Leu	Gly 55	Ala	Ala	Gly	Ser	Thr 60
Met Gly Ala	a Ala Ser 65	Met Thr	Leu	Thr	Val 70	Gln	Ala	Arg	Gln	Leu 75
Leu Ser Gly	/ Ile Val 80		Gln	Asn	Asn 85	Leu	Leu	Arg	Ala	Ile 90
Glu Ala Gli	n Gln His 95		Gln	Leu	Thr 100	Val	Trp	Gly	Ile	Lys 105
Gln Leu Gli	n Ala Arg 110		Ala	Met	Glu 115	Arg	Tyr	Leu	Lys	Asp 120
Gln Gln Le	ı Leu Gly 125		Gly	Cys	Ser 130	Gly	Lys	Leu	Ile	Cys 135
Thr Thr Ala	a Val Pro 140		Thr	Ser	Trp 145	Ser	Asn	Lys	Ser	Leu 150
Glu Lys Il	e Trp Asn 155		Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile Asp As	n Tyr Thr 170		Ile	Tyr	Ser 175	Leu	Ile	Gly	Glu	Ser 180
Gln Asn Gl	n Gln Glu 185		Glu	Gln	Asp 190	Leu	Leu	Glu	Leu	Asp 195

Lys	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Asn 205	Ile	Thr	Lys	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Val	Gly 225
Leu	Arg	Ile	Val	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Leu	Leu	Pro	Ala	Glr 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Gly	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:45:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

95

Gly Gly Gly Asp Met Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 30

Ala Lys Ser Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Val 45

Leu Gly Ala Met Phe Leu Gly Leu Leu Gly Ala Ala Gly Ser Thr 60

Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu 75

Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile 90

Glu Ala Gln Gln His Leu Ser Gln Leu Thr Val Trp Gly Ile Lys

100

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp 120 110 Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 Pro Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Arg Ser Leu 140 145 150 Gln Tyr Ile Trp Asn Asn Met Thr Trp Ile Glu Trp Glu Arg Glu 160 165 155 Ile Asp Asn Tyr Thr Asp Ile Ile Tyr Ser Leu Ile Glu Lys Ser 175 180 170 Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp 185 190 195 Gln Trp Ala Ser Leu Trp Asn Trp Phe Ser Ile Thr Lys Trp Leu 210 200 205 Trp Tyr Ile Lys Leu Phe Ile Met Ile Val Gly Gly Leu Ile Gly 215 220 225 Leu Arg Ile Val Phe Ala Ile Leu Ser Ile Val Asn Arg Ala Arg 235 230 Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Leu Pro Ala Pro 250 245 Arg Gly Leu Asp Arg Pro Glu Gly Ile Gly Glu Glu Gly Gly 265 260

## (2) INFORMATION FOR SEQ ID NO:46:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 269 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

k

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Arg Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Pro Ile Cys Thr Thr Ser Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp Asn Asn Met Thr Trp Leu Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Leu Ile Tyr Ser Leu Ile Lys Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln Glu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Glu Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Thr Val Leu Ser Ile Val Asn Arg Val Arg 

Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Arg Leu Pro Ala Pro 245 250 255

Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly 260 265 269

- (2) INFORMATION FOR SEQ ID NO:47:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear

125

140

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 10 Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Val 35 Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 50 Met Gly Ala Ala Ser Met Ala Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile 85 90 80 Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 105 95 100 Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp 115 120 110 Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys

Thr Thr Ala Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu

130

145

135

Glu	Glu	Ile	Trp	Asp 155	Asn	Met	Thr	Trp	Met 160	Glu	Trp	Glu	Arg	Glu 165
Ile	Asn	Asn	Tyr	Thr 170	Gly	Leu	Ile	Tyr	Thr 175	Leu	Ile	Glu	Gln	Ser 180
Gln	Āsn	Gln	Gln	Glu 185	Lys	Asn	Glu	Gln	Glu 190	Leu	Leu	Ala	Leu	Asp 195
Thr	Trp	Ala	Ser	Leu 200	Trp	Asn	Trp	Phe	Ser 205	Ile	Ser	Asn	Trp	Leu 210
Trp	Tyr	Ile	Arg	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Val	Gly 225
Leu	Arg	Ile	Val	Phe 230	Ala	Val	Leu	Ser	Ile 235	Val	Asn	Arg	Val	Arc 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Arg	Leu	Pro	Thr	Pro 255
Arg	Gly	Pro	Asp	Arg 260	Pro	Glu	Gly	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:48:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 15

  Tyr Lys Val Val Lys 20 Ile Glu Pro Ile Gly Val Ala Pro Thr Lys 30

  Ala Lys Arg Arg Val Val Gln Arg Glu Lys Gly Arg Ala Val Gly Thr 45

  Ile Gly Val Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr 60

Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Lys Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Ile Glu Arg Phe Leu Arg Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Thr Ser Trp Ser Asn Lys Ser Leu Lys Gln Ile Trp Asp Asn Leu Thr Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Ile Ile Phe Asn Leu Ile Glu Glu Ala Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp Leu Leu Glu Leu Asp Lys Trp Ala Gly Leu Trp Asn Trp Phe Ser Ile Thr Asn Trp Leu Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Leu Pro Thr Pro Arg Gly Pro Asp Arg Pro Glu Gly Thr Gly Glu Glu Gly Gly 

# (2) INFORMATION FOR SEQ ID NO:49:

## (i) SEQUENCE CHARACTERISTICS:

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(A) LENGTH: 233 amino acids

(B) TYPE: Amino Acid

(D) TOPOLOGY: Linear

185

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 15 5 10 1 Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Lys 30 25 20 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile 40 35 Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Leu Leu Leu 70 65 Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 95 100 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln 110 115 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 130 125 Thr Ala Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Asp 145 150 140 Gln Ile Trp Asp Asn Met Thr Trp Met Gln Trp Glu Arg Glu Ile 165 155 160 Glu Asn Tyr Thr Ser Leu Ile Tyr Asn Leu Ile Glu Glu Ser Gln 170 175 180 Asn Gln Gln Glu Lys Asn Glu Gln Asp Leu Leu Glu Leu Asp Lys

190

Trp Ala Ser Leu Trp Ser Trp Phe Ser Ile Thr Asn Trp Leu Trp
200 205 210

Tyr Ile Arg Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu 215 220 225

Arg Ile Val Phe Ala Val Leu Ser 230 233

### (2) INFORMATION FOR SEQ ID NO:50:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 233 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 55 60

Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Leu Leu 65 70 75

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
95 100 105

Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln
110 115 120

Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 135

Thr	Ala	Val	Pro	Trp 140	Asn	Ser	Ser	Trp	Ser 145	Asn	Lys	Ser	Leu	Asp 150
Gln	Ile	Trp	Asn	Asn 155	Met	Thr	Trp	Met	Gln 160	Trp	Glu	Arg	Glu	Ile 165
Glu	Asn	Tyr	Thr	Ser 170	Leu	Ile	Tyr	Asn	Leu 175	Ile	Glu	Glu	Ser	Glr 180
Asn	Gln	Gln	Glu	Lys 185	Asn	Glu	Gln	Glu	Leu 190	Leu	Glu	Leu	Asp	Lys 195
Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Ser	Ile 205	Thr	Asn	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Ile	Ile	Val	Gly 220	Gly	Leu	Ile	Gly	Leu 225
Arg	Ile	Val	Phe	Ala		Leu	Ser							

- (2) INFORMATION FOR SEQ ID NO:51:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 233 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Ala Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 15 5 10 1 Tyr Lys Val Ile Gln Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 30 25 20 Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile 45 35 Gly Ala Val Leu Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 55 Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 75 70 65

Ser	Gly	Ile	Val	Gln 80	Gln	Gln	Asn	Asn	Leu 85	Leu	Arg	Ala	Ile	Glu 90
Ala	Gln	Gln	His	Leu 95	Leu	Gln	Leu	Thr	Val 100	Trp	Gly	Ile	Lys	Gln 105
Leu	Gln	Ala	Arg	Val 110	Leu	Ala	Leu	Glu	Arg 115	Tyr	Leu	Lys	qaA	Gln 120
Gln	Leu	Leu	Gly	Ile 125	Trp	Gly	Cys	Ser	Gly 130	Lys	Leu	Ile	Cys	Thr 135
Thr	Ala	Val	Pro	Trp 140	Asn	Ala	Ser	Trp	Ser 145	Asn	Lys	Ser	Leu	Asn 150
Asp	Ile	Trp	Asp	Asn 155	Met	Thr	Trp	Met	Gln 160	Trp	Asp	Arg	Glu	Ile 165
Asn	Lys	Tyr	Thr	Asp 170	Ser	Ile	Tyr	Gln	Leu 175	Ile	Glu	Glu	Ser	Gln 180
Asn	Gln	Gln	Glu	Lys 185	Asn	Glu	Gln	Asp	Leu 190	Leu	Lys	Leu	Asp	Glu 195
Trp	Ala	Ser	Leu	Trp 200	Asn	Trp	Phe	Ser	Ile 205	Ser	Lys	Trp	Leu	Trp 210
Tyr	Ile	Lys	Ile	Phe 215	Ile	Met	Ile	Val	Gly 220	Gly	Leu	Val	Gly	Leu 225
Arg	Ile	Val	Phe	Ala	Val	Leu	Ser							

# (2) INFORMATION FOR SEQ ID NO:52:

230

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 105 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 1 5 10 15

Tyr	Lys	Val	Val	Lys 20	Ile	Glu	Pro	Leu	Gly 25	Val	Ala	Pro	Thr	Arg 30
Ala	Lys	Arg	Arg	Val 35	Val	Gln	Arg	Glu	Arg 40	Arg	Ala	Val	Gly	Ala 45
Leu	Gly	Ala	Met	Phe 50	Leu	Gly	Phe	Leu	Gly 55	Ala	Ala	Gly	Ser	Thr
Met	Gly	Ala	Ala	Ser 65	Leu	Thr	Leu	Thr	Val 70	Gln	Ala	Arg	Gln	Leu 75
Leu	Ser	Glv	Tla	Va 1	Gln	Gln	Gln	Δsn	Asn	Len	Leu	Lvs	Ala	Ile

80 85 90

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105

## (2) INFORMATION FOR SEQ ID NO:53:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 105 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:
- Gly Gly Gly Asp Met Lys Asp Asn Trp Arg Ser Lys Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr
35 40 45

Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Ala Ser Ile Thr Leu Met Val Gln Ala Arg Gln Leu 65 70 75

Leu Ser Gly Ile Val Gln Gln Gln Arg Asn Leu Leu Arg Ala Ile 80 85 90

Glu	Ala	Gln	Gln	His	Leu	Leu	Gln	Leu	Thr	Val	Trp	Gly	Ile	Lys
				95					100					105

- (2) INFORMATION FOR SEQ ID NO:54:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 105 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Gln Arg Glu Arg Arg Ala Val Gly Ala
  35 40 45
- Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
  50 55 60
- Met Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu
  65 70 75
- Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Lys Ala Ile 80 85 90
- Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105
- (2) INFORMATION FOR SEQ ID NO:55:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 105 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:
- Gly Gly Gly Asp Met Lys Asp Asn Trp Arg Ser Lys Leu Tyr Lys
  1 5 10 15

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Tyr	Lys	Val	Val	Lys 20	Ile	Glu	Pro	Leu	Gly 25	Val	Ala	Pro	Thr	Arg
Ala	Lys	Arg	Arg	Val 35	Val	Gln	Arg	Glu	Lys 40	Arg	Ala	Val	Gly	Thr 45
Ile	Gly	Ala	Met	Phe 50	Leu	Gly	Phe	Leu	Gly 55		Ala	Gly	Ser	Thr 60
Met	Gly	Ala	Ala	Ser 65	Ile	Thr	Leu	Met	Val 70	Gln	Ala	Arg	Gln	Leu 75
Leu	Ser	Gly	Ile	Val 80	Gln	Gln	Gln	Arg	Asn 85	Leu	Leu	Arg	Ala	Il∈ 90
Glu	Ala	Gln	Gln	His									Ile	

- (2) INFORMATION FOR SEQ ID NO:56:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 93 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:
- Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu 65 70 75
- Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln 93

## (2) INFORMATION FOR SEQ ID NO:57:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 94 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile 35 40 45

Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Leu Leu Leu 65 70 75

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His

(2) INFORMATION FOR SEQ ID NO:58:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 79 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

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Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Glu Val Gln Arg Glu Lys Arg Ala Val Gly Thr
35 40 45

Leu Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Ala Ser Val Ala Leu Thr Val Pro Leu Arg Arg Ile
65 70 75

Arg Ser Cys Xaa 79

- (2) INFORMATION FOR SEQ ID NO:59:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 79 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Val Ala Pro Thr Lys 20 25 30

Ala Lys Arg Arg Val Val Gln Gly Glu Lys Arg Ala Val Gly Thr
35 40 45

Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Arg Ser Ile Thr Leu Thr Val Pro Leu Arg Arg Ile
65 70 75

Arg Ser Cys Xaa 79

- (2) INFORMATION FOR SEQ ID NO:60:
  - (i) SEQUENCE CHARACTERISTICS:

(A)	LENGTH: 79 amino	acids
(B)	TYPE: Amino Acid	
(D)	TOPOLOGY: Linear	

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr
35 40 45

Ile Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
50 55 60

Met Gly Ala Ala Ser Ile Thr Leu Thr Val Pro Val Arg Arg Ile
65 70 75

Arg Ser Cys Xaa 79

## (2) INFORMATION FOR SEQ ID NO:61:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 55 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 ' 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Thr
35 40 45

Ile Gly Ala Met Phe Leu Gly Phe Leu Gly 50 55

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# (2) INFORMATION FOR SEQ ID NO:62:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 55 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:
- Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Ile Gly Thr
35 40 45

Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly
50 55

- (2) INFORMATION FOR SEQ ID NO:63:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 54 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Gly Gly Gly Asn Met Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Thr Met
35 40 45

Gly Ala Leu Phe Leu Gly Phe Leu Gly
50
54

- (2) INFORMATION FOR SEQ ID NO:64:
  - (i) SEQUENCE CHARACTERISTICS:

(A)	LENGTH: 54 amino	acids
(B)	TYPE: Amino Acid	
(D)	TOPOLOGY: Linear	

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Leu
35 40 45

Gly Ala Met Phe Leu Gly Phe Leu Gly 50 54

- (2) INFORMATION FOR SEQ ID NO:65:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 41 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Thr
20 25 30

Ala Lys Arg Arg Val Met Gln Arg Glu Lys Arg
35 40 41

- (2) INFORMATION FOR SEQ ID NO:66:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 34 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Thr
20 25 30

Ala Lys Arg Arg 34

## (2) INFORMATION FOR SEQ ID NO:67:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 270 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Xaa 35 40 45
- Leu Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
  50 55 60
- Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu 65 70 75
- Leu Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile 80 85 90
- Glu Ala Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys 95 100 105
- Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp 110 115 120
- Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135

Thr Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Xaa 150 145 Gln Ser Xaa Ile Trp Asp Asn Met Thr Trp Leu Gln Trp Asp Lys 155 160 165 Glu Ile Ser Asn Tyr Thr Xaa Ile Ile Tyr Asn Leu Ile Glu Glu 170 175 180 Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu 190 195 185 Asp Lys Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Asn Trp 205 210 200 Leu Trp Tyr Ile Xaa Ile Phe Ile Met Ile Val Gly Leu Ile 225 220 215 Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Ile Asn Arg Val 240 235 230 Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Thr Pro Asn 250 255 245 Pro Arg Xaa Pro Asp Arg Pro Gly Arg Ile Glu Glu Gly Gly 270 265 260

- (2) INFORMATION FOR SEQ ID NO:68:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

Thr Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Pro
20 25 30

Ala Lys Arg Arg Val Val Gln Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Val Phe Ile Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Thr Gln Ser Glu Ile Trp Asn Asn Met Thr Trp Leu Gln Trp Asp Lys Glu Ile Ser Asn Tyr Thr Asp Ile Ile Tyr Asn Leu Ile Glu Glu Ser Gln Ile Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Ala Leu Asp Lys Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Lys Trp Leu Trp Tyr Ile Arg Ile Phe Ile Met Ile Val Gly Leu Ile Gly Leu Arg Ile Val Phe Ala Val Leu Ser Ile Ile Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Ile His Thr Pro Asn Pro Arg Gly Pro Asp Arg Pro Glu Arg Ile Glu Glu Glu Gly Gly

## (2) INFORMATION FOR SEQ ID NO:69:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 267 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Lys Ser Glu Leu Tyr Lys

  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Leu
  35 40 45
- Gly Ala Ile Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
  65 70 75
- Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105
- Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gln Asp Gln
  110 115 120
- Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 135
- Thr Thr Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Gln Glu 140 145 150
- Asp Ile Trp Asn Asn Met Thr Trp Leu Gln Trp Glu Lys Glu Ile 155 160 165
- Ser Ser Tyr Thr Gly Ile Ile Tyr Gln Leu Ile Glu Glu Ser Gln 170 175 180

Asn	Gln	Gln	Glu	Lys 185	Asn	Glu	Leu	Asp	Leu 190	Leu	Ala	Leu	Asp	Lys 195
Trp	Ala	Asn	Leu	Asn 200	Trp	Phe	Asn	Ile	Ser 205	Asn	Trp	Leu	Trp	Туг 210
Ile	Arg	Leu	Phe	Val 215	Ile	Ile	Val	Gly	Gly 220	Leu	Ile	Gly	Leu	Arg 225
Ile	Val	Phe	Thr	Val 230	Leu	Ser	Ile	Ile	Asn 235	Arg	Val	Arg	Gln	Gl <sub>y</sub> 240
Tyr	Ser	Pro	Leu	Ser 245	Phe	Gln	Thr	Leu	Ala 250	Pro	Ile	Pro	Glu	Gl <sub>y</sub> 255
Leu	Gly	Arg	Pro	Gly	Arg	Ile	Glu			Gly				

- (2) INFORMATION FOR SEQ ID NO:70:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 268 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

  1 5 10 15

  Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
- Ala Lys Arg Arg Val Val Ala Arg Glu Lys Arg Ala Ile Gly Met
  35 40 45
- Gly Ala Phe Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Arg Leu Leu
  65 70 75
- Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys Gln 95 Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 120 115 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Ile Ile Cys Pro 135 130 125 Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Gln Ser 140 145 150 Asp Ile Trp Asp Lys Met Thr Trp Leu Glu Trp Asp Lys Glu Val 160 155 Ser Asn Tyr Thr Gln Val Ile Tyr Asn Leu Ile Glu Glu Ser Gln 175 170 Thr Gln Glu Ile Asn Glu Arg Asp Leu Leu Ala Leu Asp Lys 185 190 Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Asn Trp Leu Trp 200 205 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu 215 Arg Ile Val Phe Ala Val Leu Ser Ile Ile Asn Arg Val Arg Gln 235 230 Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Thr His His Gln Arg 250 255 245 Glu Pro Asp Arg Pro Glu Arg Ile Glu Glu Gly Gly 260 265 268

#### (2) INFORMATION FOR SEQ ID NO:71:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 268 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Ser Arg 20 25 30 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile 40 45 35 Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 55 60 Gly Ala Ala Ser Ile Thr Leu Thr Ala Gln Ala Arg Gln Leu Leu 70 75 65 Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 85 Ala Gln Gln His Met Leu Lys Leu Thr Val Trp Gly Ile Lys Gln 95 100 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Met Asn 140 145 Glu Ile Trp Asp Asn Met Thr Trp Leu Gln Trp Asp Lys Glu Ile 160 165 155 Ser Asn Tyr Thr Gln Ile Ile Tyr Asn Leu Ile Glu Glu Ser Gln 170 175 180 Asn Gln Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys 195 185 190 Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Ser Arg Trp Leu Trp 210 205 200 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu

220

225

 Arg Ile Val Phe Ala Val Leu Ser Val Ile Asn Arg Val Arg Gln

 230
 235
 240

 Gly Tyr Ser Pro Leu Ser Phe Gln Ile Arg Thr Pro Asn Pro Lys
 245
 250

 Glu Pro Asp Arg Leu Gly Arg Ile Asp Gly Glu Gly
 265
 268

#### (2) INFORMATION FOR SEQ ID NO:72:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 268 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:
- Gly Gly Gly Asn Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg 20 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Met 35 40 Gly Ala Val Phe Ile Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 60 50 Gly Ala Ala Ser Ile Thr Leu Met Val Gln Ala Arg Gln Leu Leu 75 65 70 Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 85 90 80 Ala Gln Gln His Leu Leu Arg Leu Thr Val Trp Gly Ile Lys Gln 100 105 95 Leu Gln Ala Arg Val Leu Ala Leu Glu Arg Tyr Leu Arg Asp Gln 120 110 115

Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr

125

130

Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Tyr Ser 150 145 140 Glu Ile Trp Asp Asn Met Thr Trp Leu Gln Trp Asp Lys Glu Ile 155 160 165 Asn Asn Tyr Thr Glu Leu Ile Tyr Ser Leu Ile Glu Asp Ser Gln 175 180 170 Asn Gln Gln Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys 195 190 185 Trp Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Asn Trp Leu Trp 200 205 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Leu Ile Gly Leu 220 215 Arg Ile Ile Phe Ala Val Leu Ser Ile Ile Asn Arg Val Arg Gln 230 235 Gly Tyr Ser Pro Leu Ser Phe Gln Thr His Thr Pro Asn Pro Arg 245 250 Gly Leu Asp Arg Pro Gly Arg Ile Glu Glu Gly Gly 265 260

- (2) INFORMATION FOR SEQ ID NO:73:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 243 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Asp Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Leu
  35 40 45

Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Met Ala Ile Glu Ala Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Leu Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Thr Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Thr Tyr Ser Asp Ile Trp Asp Asn Met Thr Trp Leu Gln Trp Asp Lys Glu Ile Ser Asn Tyr Thr Lys Ile Ile Tyr Ala Leu Ile Glu Glu Ser Ala Asn Gln Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Thr Ser Leu Trp Ser Trp Phe Asp Ile Thr Lys Trp Leu Trp Tyr Ile Arg Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu Arg Ile Val Phe Ala Val Leu Asn Ile Ile Asn Arg Val Arg Gln 

Gly Tyr Ser 

- (2) INFORMATION FOR SEQ ID NO:74:
  - (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 104 amino acids

(B) TYPE: Amino Acid

(D) TOPOLOGY: Linear

# (xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Leu
35 40 45

Gly Ala Val Phe Ile Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
65 70 75

Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys
95 100 104

## (2) INFORMATION FOR SEQ ID NO:75:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 54 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear

#### (xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Ser Arg
20 25 30

Ala Lys Arg Arg Val Val Trp Arg Glu Lys Arg Ala Val Val Glu
35 40 45

Ile Gly Ala Val Phe Leu Gly Phe Leu 50 54

## (2) INFORMATION FOR SEQ ID NO:76:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 269 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Val Ala Pro Thr Xaa 20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Xaa 35 40 45
- Ile Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr
  50 55 60
- Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu
  65 70 75
- Leu Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile 80 85 90
- Glu Ala Gln Gln His Xaa Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105
- Gln Leu Gln Thr Arg Val Leu Ala Ile Glu Arg Tyr Leu Lys Asp 110 115 120
- Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys 125 130 135
- Thr Thr Xaa Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Gln
  140 145 150
- Thr Asp Ile Trp Asp Asn Met Thr Trp Met Gln Trp Asp Arg Glu
  155 160 165

Ile	Ser	Asn	Tyr	Thr 170	Asp	Thr	Ile	Tyr	Arg 175	Leu	Leu	Glu	Asp	Ser 180
Gln	Asn	Gln	Gln	Glu 185	Arg	Asn	Glu	Lys	Asp 190	Leu	Leu	Ala	Leu	Asp 195
Ser	Trp	Lys	Asn	Leu 200	Trp	Asn	Trp	Phe	Ser 205	Ile	Thr	Asn	Trp	Leu 210
Trp	Tyr	Ile	Lys	Ile 215	Phe	Ile	Met	Ile	Val 220	Gly	Gly	Leu	Ile	Gly 225
Leu	Arg	Ile	Ile	Phe 230	Ala	Val	Ļeu	Ser	Ile 235	Val	Asn	Arg	Val	Arg 240
Gln	Gly	Tyr	Ser	Pro 245	Leu	Ser	Phe	Gln	Thr 250	Leu	Thr	Pro	Asn	Pro 255
Arg	Gly	Pro	Asp	Arg 260		Gly	Arg	Ile	Glu 265	Glu	Glu	Gly	Gly 269	

- (2) INFORMATION FOR SEQ ID NO:77:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 5 15 10 1 Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Val Ala Pro Thr Lys 30 25 20 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile 45 35 Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 60 55 50 Gly Ala Ala Ser Val Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 70 75 65

Phe	Gly	Ile	Val		Gln	Gln	Ser	Asn		Leu	Arg	Ala	Ile	
				80					85					90
Ala	Gln	His	Gly	Leu 95	Leu	Gln	Leu	Thr	Val 100	Trp	Gly	Ile	Lys	Glr 105
Leu	Gln	Thr	Arg	Val 110	Leu	Ala	Ile	Glu	Arg 115	Tyr	Leu	Lys	Asp	Glr 120
Gln	Leu	Leu	Gly	Ile 125	Trp	Gly	Cys	Ser	Gly 130	Lys	Leu	Ile	Cys	Th:
Thr	Ala	Val	Ala	Trp 140	Asn	Ser	Ser	Trp	Ser 145	Asn	Lys	Ser	Gln	Ser 150
Asp	Ile	Trp	Asp	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Asp	Arg	Glu	11e
Ser	Asn	Tyr	Thr	Asp 170	Ile	Ile	Tyr	Lys	Leu 175	Leu	Glu	Asp	Ser	Glr 180
Asn	Gln	Gln	Glu	Lys 185	Asn	Glu	Lys	Asp	Leu 190	Leu	Ala	Leu	Asp	Sei 195
Trp	Lys	Asn 198												

- (2) INFORMATION FOR SEQ ID NO:78:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Val Ala Pro Thr Glu 20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
  35 40 45

Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 60 50 Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 65 70 75 Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 85 90 80 Ala Arg Gln Gly Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 105 95 100 Leu Gln Ala Arg Val Leu Ala Ile Glu Arg Tyr Leu Gln Asp Gln 115 110 Gln Leu Leu Gly Leu Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 135 Thr Thr Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Lys Thr 145 140 Asp Ile Trp Asp Asn Met Thr Trp Met Gln Trp Asp Arg Glu Ile 155 160 Ser Asn Tyr Thr Asp Thr Ile Tyr Lys Leu Leu Glu Asp Ser Gln 170 175 Asn Gln Gln Glu Lys Asn Glu Lys Asp Leu Ala Leu Asp Ser 185 190 195 Trp Asn Asn 198

- (2) INFORMATION FOR SEQ ID NO:79:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:
- Gly Gly Gly Asp Met Arg Asn Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15

Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Val Ala Pro Thr Thr Ala Lys Arq Arq Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln Gly Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Thr Arg Val Leu Ala Ile Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu Gly Ile Trp Gly Arg Ser Gly Lys Leu Ile Cys Thr Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Gln Thr Asp Ile Trp Asp Asn Met Thr Trp Met Gln Trp Asp Arg Glu Ile Ser Asn Tyr Thr Asp Thr Ile Tyr Arg Leu Leu Glu Asp Ser Gln Asn Gln Glu Arg Asn Glu Lys Asp Leu Leu Ala Leu Asp Ser 

Trp Lys Asn 

- (2) INFORMATION FOR SEQ ID NO:80:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:

Gly Gly Gly Glu Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Val Ala Pro Thr Thr 25 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 60 Gly Ala Ala Ser Met Thr Val Thr Val Gln Ala Arg Gln Leu Leu 70 75 65 Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 90 80 85 Ala Gln Gln Gly Leu Leu Gln Leu Thr Ile Trp Gly Ile Lys Gln 95 100 105 Leu Gln Ala Arg Val Leu Ala Ile Glu Arg Tyr Leu Lys Glu Gln 115 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 125 130 Thr Thr Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Gln Thr 140 145 Asp Ile Trp Asp Asn Met Thr Trp Met Gln Trp Asp Arg Glu Ile 155 Ser Asn Tyr Thr Glu Thr Ile Tyr Arg Leu Leu Glu Asp Ser Gln 175 170 Asn Gln Glu Arg Asn Glu Lys Asp Leu Leu Ala Leu Asp Ser 195 185 190

Trp Lys Asn 198

## (2) INFORMATION FOR SEQ ID NO:81:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

185

•	•	-												
Gly 1	Gly	Gly	Asp	Met 5	Arg	Asp	Asn	Trp	Arg 10	Ser	Glu	Leu	Tyr	Lys 15
Tyr	Lys	Val	Val	Glu 20	Ile	Lys	Pro	Leu	Gly 25	Val	Ala	Pro	Thr	Thr 30
Ala	Lys	Arg	Arg	Val 35	Val	Glu	Arg	Glu	Lys 40	Arg	Ala	Val	Gly	Leu 45
Gly	Ala	Val	Phe	Leu 50	Gly	Phe	Leu	Gly	Ala 55	Ala	Gly	Ser	Thr	Met 60
Gly	Ala	Ala	Ser	Ile 65	Thr	Leu	Thr	Val	Gln 70	Ala	Arg	Gln	Leu	Leu 75
Ser	Gly	Ile	Val	Gln 80	Gln	Gln	Ser	Asn	Leu 85	Leu	Arg	Ala	Ile	Glu 90
Ala	Gln	Gln	Gly	Leu 95	Leu	Gln	Leu	Thr	Val 100	Trp	Gly	Ile	Lys	Gln 105
Leu	Gln	Thr	Arg	Val 110	Leu	Ala	Ile	Glu	Arg 115	Tyr	Leu	Lys	Asp	Gln 120
Gln	Leu	Leu	Gly	Met 125	Trp	Gly	Cys	Ser	Gly 130	Lys	Leu	Ile	Cys	Thr 135
Thr	Ala	Val	Pro	Trp	Asn	Ser	Ser	Trp	Ser 145	Asn	Arg	Ser	Gln	Thr 150
Asp	Ile	Trp	Asp	Asn 155	Met	Thr	Trp	Met	Gln 160	Trp	Asp	Arg	Glu	Ile 165
Ser	Asn	Tyr	Thr	Asn 170	Thr	Ile	Tyr	Arg	Leu 175	Leu	Glu	Asp	Ser	Gln 180
Asn	Gln	Gln	Glu	Arg	Asn	Glu	Lys		Leu	Leu	Ala	Leu	Asp	Ser

190

Trp Lys Asn 198

### (2) INFORMATION FOR SEQ ID NO:82:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 121 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

Gly Gly Gly Asn Met Lys Asp Asn Trp Arg Asn Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Ile Ala Pro Thr Gly
20 25 30

Ser Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Val Leu Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
65 70 75

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln Gly Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
95 100 105

Leu Gln Thr Arg Val Leu Ala Ile Glu Arg Tyr Leu Lys Asp Gln
110 115 120

Gln 121

# (2) INFORMATION FOR SEQ ID NO:83:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 72 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear

# (xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

Gly Gly Gly Asp Met Arg Asn Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Glu Ile Lys Pro Leu Gly Val Ala Pro Thr Thr
20 25 30

Pro Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Ile Thr Leu Thr Val Pro Leu Arg
65 70 72

- (2) INFORMATION FOR SEQ ID NO:84:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Xaa Ala Pro Thr Xaa 20 25 30

Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu
35 40 45

Gly Ala Xaa Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
65 70 75

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 100 95 Leu Gln Ala Arq Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 115 120 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys His Ile Cys Thr 135 125 130 Thr Xaa Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Leu Asp 140 145 150 Glu Ile Trp Gln Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile 160 165 155 Asp Asn Tyr Thr Gly Leu Ile Tyr Ser Leu Ile Glu Glu Ser Gln 175 180 170 Ile Gln Gln Glu Lys Asn Glu Lys Glu Leu Leu Glu Leu Asp Lys 185 190 Trp Ala Ser Leu Trp Asn Trp Phe Ser Ile Thr Lys Trp Leu Trp 200 205 Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly Leu 220 215 Arg Ile Val Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg Gln 235 230 Gly Tyr Ser Pro Leu Ser Phe Gln Thr Leu Leu Pro Ala Pro Arg 250 255 245 Gly Xaa Pro Asp Arg Pro Glu Gly Ile Glu Glu Gly Gly 260 265 269

#### (2) INFORMATION FOR SEQ ID NO:85:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

Gly Gly Gly Asp Met Lys Asp Asn Trp Arg Asn Glu Leu Tyr Lys Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg 30 20 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu 35 45 Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 55 50 Gly Ala Val Ser Val Ala Leu Thr Gly Gln Ala Arg Gln Leu Leu 70 65 Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 Ala Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 105 100 95 Leu Gln Ala Arg Val Leu Ala Val Glu Ser Tyr Leu Lys Asp Gln 115 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys His Ile Cys Thr 130 Thr Thr Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser Leu Glu 150 145 140 Glu Ile Trp Asn Asn Met Thr Trp Ile Glu Trp Glu Arg Glu Ile 155 160 165 Asp Asn Tyr Thr Gly Val Ile Tyr Ser Leu Ile Glu Asn Ser Gln 180 170 175 Ile Gln Gln Glu Lys Asn Glu Gln Asp Leu Leu Gln Leu Asp Lys 185 190 195

Trp Ala Ser 198

- (2) INFORMATION FOR SEQ ID NO:86:
  - (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 198 amino acids
- (B) TYPE: Amino Acid (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 5 10 1 Tyr Lys Val Val Lys Ile Glu Pro Ile Gly Val Ala Pro Thr Lys 25 20 Ala Arq Arq Arq Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu 40 35 Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 55 50 Gly Ala Ala Ser Val Thr Leu Thr Val Gln Ala Arg Gln Leu Met 70 65 Ser Gly Ile Val His Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 85 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 100 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Arg Asp Gln

120 110 115

Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Arg His Ile Cys Thr 125 130 135

Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Leu Asp 150 140 145

Glu Ile Trp Gln Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile 155 160 165

Asp Asn Tyr Thr Gly Leu Ile Tyr Ser Leu Ile Glu Glu Ser Gln 180 170 175

Ile Gln Gln Glu Lys Asn Glu Lys Glu Leu Leu Glu Leu Asp Lys 195 190 185

Trp Ala Ser 198

## (2) INFORMATION FOR SEQ ID NO:87:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Ile Ser Glu Leu Tyr Lys

  1 5 10 15
- Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu
  35 40 45
- Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
  65 70 75
- Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105
- Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gln Asp Gln
  110 115 120
- Arg Leu Cly Met Trp Gly Cys Ser Gly Lys His Ile Cys Thr 125 130 135
- Thr Phe Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Leu Asp 140 145 150
- Asp Ile Trp Asn Asn Met Thr Trp Met Gln Trp Glu Lys Glu Ile 155 160 165

Ser Asn Tyr Thr Gly Ile Ile Tyr Asn Leu Ile Glu Glu Ser Gln 170 175 180

Ile Gln Gln Glu Lys Asn Glu Lys Glu Leu Leu Glu Leu Asp Lys
185 190 195

Trp Ala Ser 198

# (2) INFORMATION FOR SEQ ID NO:88:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:88:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu
  35 40 45
- Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Arg Ser Val Thr Leu Thr Val Gln Ala Arg Gln Leu Met
  65 70 75
- Ser Gly Ile Val Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105
- Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln
  110 115 120
- Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys His Ile Cys Thr 125 130 135

Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Leu Asn 150 140 Glu Ile Trp Gln Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile 160 165 155 Asp Asn Tyr Thr Gly Leu Ile Tyr Ser Leu Ile Glu Glu Ser Gln 175 180 170 Thr Gln Gln Glu Lys Asn Glu Lys Glu Leu Leu Glu Leu Asp Lys 185 190 195 Trp Ala Ser

(2) INFORMATION FOR SEQ ID NO:89:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

  1 5 10 15
- Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu
  35 40 45
- Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Arg Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 65 70 75
- Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105

Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 120 115 110 Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr 130 135 125 Thr Thr Val Pro Trp Asn Ser Ser Trp Ser Asn Arg Ser Leu Asn 150 145 140 Asp Ile Trp Gln Asn Met Thr Trp Met Glu Trp Glu Arg Glu Ile 165 160 155 Asp Asn Tyr Thr Gly Leu Ile Tyr Arg Leu Ile Glu Glu Ser Gln 170 175 Thr Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys 190 185

Trp Ala Ser 198

- (2) INFORMATION FOR SEQ ID NO:90:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Ile Lys Ile Glu Pro Leu Gly Leu Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Ala Arg Glu Lys Arg Ala Ile Gly Leu
35 40 45

Gly Ala Val Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Met
65 70 75

Ser	Gly	Ile	Val	Gln 80	Gln	Gln	Asn	Asn	Leu 85	Leu	Arg	Ala	Ile	Glu 90
Ala	Gln	Gln	His	Leu 95	Leu	Gln	Leu	Thr	Val 100	Trp	Gly	Ile	Lys	Glr 105
Leu	Gln	Ala	Arg	Val 110	Leu	Ala	Val	Glu	Ser 115	Tyr	Leu	Lys	Asp	Glr 120
Gln	Leu	Leu	Gly	Ile 125	Trp	Gly	Cys	Ser	Gly 130	Arg	His	Ile	Cys	Pro
Thr	Gln	Val	Pro	Trp 140	Asn	Ser	Ser	Trp	Ser 145	Asn	Lys	Ser	Leu	Asp 150
Thr	Ile	Trp	Gly	Asn 155	Met	Thr	Trp	Met	Glu 160	Trp	Glu	Arg	Glu	Ile 165
Ser	Asn	Tyr	Thr	Gly 170	Leu	Ile	Tyr	Asp	Leu 175	Ile	Glu	Glu	Ser	Glr 180
Ile	Gln	Gln	Glu	Lys 185	Asn	Glu	Lys	Asp	Leu 190	Leu	Glu	Leu	Asp	Lys 195
Trp	Ala	Ser												

(2) INFORMATION FOR SEQ ID NO:91:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 104 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:91:
- Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Asn Glu Leu Tyr Lys 1 5 10 15
- Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Leu Ala Pro Thr Lys
  20 25 30
- Ala Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu 35 40 45

Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 65 70 75

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu 80 85 90

Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 104

- (2) INFORMATION FOR SEQ ID NO:92:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 70 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:92:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Met
20 25 30

Ser Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu 35 40 45

Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Thr Leu Thr Leu Thr Val Xaa 65 70

- (2) INFORMATION FOR SEQ ID NO:93:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 70 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:93:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Leu Ala Pro Thr Glu 20 25 30

Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Ile Gly Leu
35 40 45

Gly Ala Met Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Met Thr Leu Thr Val Xaa 65 70

- (2) INFORMATION FOR SEQ ID NO:94:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 53 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:94:

Gly Gly Gly Asp Met Arg Asp Asn Arg Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Lys Ile Glu Pro Leu Gly Val Ala Pro Thr Lys
20 25 30

Thr Lys Arg Arg Val Val Glu Arg Glu Glu Arg Ala Ile Gly Leu 35 40 45

Gly Ala Met Phe Leu Gly Phe Leu 50 53

- (2) INFORMATION FOR SEQ ID NO:95:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 41 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:95:

Gly Gly Gly Asp Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Gly Ile Ala Pro Thr Met 20 25 30

Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg 35 40 41

- (2) INFORMATION FOR SEQ ID NO:96:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 269 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear

110

125

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:96:
- Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys 10 15 1 Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg 25 20 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Xaa 35 40 Ile Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr 50 Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile 90 80 Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys 95 100 105

Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp

Gln Lys Phe Leu Gly Leu Trp Gly Cys Ser Gly Lys Ile Ile Cys

115

130

120

Thr Thr Ala Val Pro Trp Asn Ser Thr Trp Ser Asn Arg Ser Phe 145 150 140 Glu Glu Ile Trp Asn Asn Met Thr Trp Ile Glu Trp Glu Arg Glu 155 160 165 Ile Ser Asn Tyr Thr Asn Gln Ile Tyr Glu Ile Leu Thr Glu Ser 170 175 180 Gln Asn Gln Gln Asp Arg Asn Glu Lys Asp Leu Leu Glu Leu Asp 185 190 Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Asn Trp Leu 200 205 Trp Tyr Ile Lys Ile Phe Ile Met Ile Val Gly Gly Leu Ile Gly 215 220 225 Leu Arg Ile Ile Phe Ala Val Leu Ser Ile Val Asn Arg Val Arg 235 230 Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr Pro Xaa His His Gln 250 245 Arg Glu Pro Asp Arg Pro Glu Arg Ile Glu Glu Gly Gly Gly 269 260 265

- (2) INFORMATION FOR SEQ ID NO:97:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:97:
- Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
  35 40 45

Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Val 65 Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 80 85 90 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 100 105 95 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 120 110 115 Lys Phe Leu Gly Leu Trp Gly Cys Ser Gly Lys Ile Ile Cys Thr 125 130 135 Thr Ala Val Pro Trp Asn Ser Thr Trp Ser Asn Arg Ser Phe Glu 140 145 Glu Ile Trp Ser Asn Met Thr Trp Ile Glu Trp Glu Arg Glu Ile 160 155 Ser Asn Tyr Thr Asn Gln Ile Tyr Glu Ile Leu Thr Glu Ser Gln 170 175 Asn Gln Gln Asp Arg Asn Glu Lys Asp Leu Leu Glu Leu Asp Lys 185 190

Trp Ala Ser 198

- (2) INFORMATION FOR SEQ ID NO:98:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 198 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:98:

Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg 20 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile 35 Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met 50 55 Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 75 65 70 Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 85 80 Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 100 105 95 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 110 115 Lys Phe Leu Gly Leu Trp Gly Cys Ser Gly Lys Ile Ile Cys Thr 125 Thr Ala Val Pro Trp Asn Ser Thr Trp Ser Asn Arg Ser Phe Glu 140 Glu Ile Trp Asn Asn Met Thr Trp Thr Glu Trp Glu Arg Glu Ile 155 Ser Asn Tyr Thr Asn Gln Ile Tyr Asp Ile Leu Thr Glu Ser Gln 175 180 170 Asn Gln Gln Asp Arg Asn Glu Lys Asp Leu Leu Gly Leu Asp Lys 195 185 190

Trp Ala Ser 198

### (2) INFORMATION FOR SEQ ID NO:99:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear

### (xi) SEQUENCE DESCRIPTION: SEQ ID NO:99:

Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg 25 20 Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu 75 65 Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 90 85 80 Ala Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln 100 95 Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln 110 115 Lys Phe Leu Gly Leu Trp Gly Cys Ser Gly Lys Ile Ile Cys Thr 130 135 125 Thr Ala Val Pro Trp Asn Ser Thr Trp Ser Asn Lys Ser Phe Glu 140 145 Glu Ile Trp Asn Asn Met Thr Trp Thr Glu Trp Glu Arg Glu Ile 160 155 Ser Asn Tyr Thr Asn Gln Ile Tyr Glu Ile Leu Thr Glu Ser Gln 175 170 Asn Gln Gln Asp Arg Asn Glu Lys Asp Leu Leu Glu Leu Asp Lys 195 185 190

Trp Ala Ser 198

(2) INFORMATION FOR SEQ ID NO:100:

### (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 189 amino acids
- (B) TYPE: Amino Acid(D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:100:

Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
65 70 75

Ser Gly Ile Val Gln Gln Ser Asn Leu Leu Arg Ala Glu Ala Gln 80 85 90

Gln His Leu Gln Leu Thr Val Trp Gly Gln Leu Gln Ala Arg
95 100 105

Val Ala Val Glu Arg Tyr Leu Lys Asp Gln Lys Leu Gly Leu Trp 110 115 120

Cys Ser Gly Lys Ile Ile Cys Thr Thr Ala Val Pro Trp Asn Ser 125 130 135

Thr Trp Ser Asn Arg Ser Phe Glu Glu Ile Trp Asn Asn Met Trp
140 145 150

Ile Glu Trp Arg Glu Ile Ser Asn Tyr Thr Asn Gln Ile Tyr Glu 155 160 165

Ile Leu Thr Glu Ser Gln Asn Gln Gln Asp Arg Asn Glu Lys Asp 170 175 180

Leu Leu Glu Leu Asp Lys Trp Ala Ser 185 189

#### (2) INFORMATION FOR SEQ ID NO:101:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 198 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:101:
- Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys
  1 5 10 15
- Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg
  20 25 30
- Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
  35 40 45
- Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
  50 55 60
- Gly Ala Ala Ser Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
  65 70 75
- Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu 80 85 90
- Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
  95 100 105
- Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln
  110 115 120
- Lys Phe Leu Gly Leu Trp Gly Cys Ser Gly Lys Ile Ile Cys Thr 125 130 135
- Thr Ala Val Pro Trp Asn Ser Thr Trp Ser Asn Arg Ser Leu Glu 140 145 150
- Glu Ile Trp Asn Asn Met Thr Trp Ile Glu Trp Glu Arg Glu Ile 155 160 165
- Ser Asn Tyr Thr Asn Arg Ile Tyr Glu Ile Leu Thr Lys Ser Gln
  170 175 180

Asp Gln Gln Asp Arg Asn Glu Lys Asp Leu Leu Glu Leu Asp Lys 185 190 195

Trp Ala Ser 198

- (2) INFORMATION FOR SEQ ID NO:102:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 70 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:102:

Gly Gly Gly Asn Ile Lys Asp Asn Trp Arg Ser Glu Leu Tyr Lys

1 5 10 15

Tyr Lys Val Val Gln Ile Glu Pro Leu Gly Ile Ala Pro Thr Arg
20 25 30

Ala Lys Arg Arg Val Val Glu Arg Glu Lys Arg Ala Val Gly Ile
35 40 45

Gly Ala Met Ile Phe Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
50 55 60

Gly Ala Pro Ser Ile Thr Leu Thr Val Xaa 65 70

- (2) INFORMATION FOR SEQ ID NO:103:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 213 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:103:

Xaa Gly Gly Asp Met Lys Asp Ile Trp Arg Thr Glu Leu Tyr Asn
1 5 10 15

Tyr Lys Val Val Arg Ile Lys Pro Xaa Ser Val Ala Pro Thr Lys
20 25 30

Xaa Xaa Arg Pro Xaa Ile Xaa Xaa Xaa Xaa His Arg Xaa Lys Arg Ala Val Gly Xaa Leu Gly Met Leu Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Xaa Leu Thr Val 65 75 Gln Thr Xaa Xaa Leu Leu Lys Gly Ile Val Gln Gln Asp Asn 85 90 80 Leu Leu Arg Ala Ile Xaa Ala Gln Gln His Leu Leu Xaa Leu Ser 105 95 100 Val Trp Gly Xaa Xaa Gln Leu Xaa Ala Arg Leu Leu Ala Xaa Glu 110 115 120 Thr Xaa Leu Gln Xaa Gln Gln Leu Leu Ser Leu Trp Gly Cys Lys 130 125 Gly Lys Leu Val Cys Tyr Thr Xaa Val Xaa Trp Asn Asn Ser Trp 140 145 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn Ser Ser Xaa Xaa 155 Xaa Ile Trp Asp Asn Leu Thr Trp Gln Xaa Trp Asp Arg Leu Xaa 170 Ser Asn Xaa Xaa Xaa Ile Tyr Xaa Glu Xaa Gln Xaa Ala Gln 190 Xaa Gln Glu Lys Asn Glu Lys Xaa Leu Leu Glu Leu Asp Glu 210 200 205 Trp Ala Ser

Trp Ala Ser 213

### (2) INFORMATION FOR SEQ ID NO:104:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 200 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear

# (xi) SEQUENCE DESCRIPTION: SEQ ID NO:104:

Ile Gly Gly Asp Met Lys Asp Ile Trp Arg Thr Glu Leu Phe Asn Tyr Lys Val Val Arg Val Lys Pro Phe Ser Val Ala Pro Thr Arg 25 Ile Ala Arg Pro Val Ile Ser Thr Arg Thr His Arg Glu Lys Arg 35 Ala Val Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Thr Leu Ala Val Gln Thr 70 75 65 His Thr Leu Leu Lys Gly Ile Val Gln Gln Asp Asn Leu Leu 85 80 Arg Ala Ile Gln Ala Gln Gln Leu Leu Arg Leu Ser Xaa Trp 100 105 95 Gly Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu Glu Thr Leu 120 110 115 Leu Gln Asn Gln Gln Leu Leu Ser Leu Trp Gly Cys Lys Gly Lys 130 125 Leu Val Cys Tyr Thr Ser Val Lys Trp Asn Arg Thr Trp Ile Gly 150 145 140 Asn Glu Ser Ile Trp Asp Thr Leu Thr Trp Gln Glu Trp Asp Arg 155 Gln Ile Ser Asn Ile Ser Ser Thr Ile Tyr Glu Glu Ile Gln Lys 175 170 Ala Gln Val Gln Glu Gln Asn Glu Lys Lys Leu Leu Glu Leu 190 Asp Glu Trp Ala Ser

(2) INFORMATION FOR SEQ ID NO:105:

### (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 204 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

185

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:105:

Val Gly Gly Asp Met Lys Asp Ile Trp Arg Thr Lys Leu Tyr Asn 10 Tyr Lys Val Val Gln Ile Lys Pro Phe Ser Val Ala Pro Thr Lys 25 20 Met Ser Arg Pro Ile Ile Asn Ile His Thr Pro His Arg Glu Lys 40 35 Arg Ala Val Gly Leu Gly Met Leu Phe Leu Gly Val Leu Ser Ala 55 Ala Gly Ser Thr Met Gly Ala Ala Ala Thr Ala Leu Thr Val Arg Thr His Ser Val Leu Lys Gly Ile Val Gln Gln Asp Asn Leu 90 Leu Arg Ala Ile Gln Ala Gln Gln His Leu Leu Arg Leu Ser Val 100 105 95 Trp Gly Ile Arg Gln Leu Arg Ala Arg Leu Gln Ala Leu Glu Thr 115 120 110 Leu Ile Gln Asn Gln Gln Arg Leu Asn Leu Trp Gly Cys Lys Gly 135 125 130 Lys Leu Ile Cys Tyr Thr Ser Val Lys Trp Asn Thr Ser Trp Ser 145 150 140 Gly Arg Tyr Asn Asp Asp Ser Ile Trp Asp Asn Leu Thr Trp Gln 160 165 155 Gln Trp Asp Gln His Ile Asn Asn Val Ser Ser Ile Ile Tyr Asp 180 175 170 Glu Ile Gln Ala Ala Gln Asp Gln Glu Lys Asn Val Lys Ala

190

195

## Leu Leu Glu Leu Asp Glu Trp Ala Ser 200 204

## (2) INFORMATION FOR SEQ ID NO:106:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 204 amino acids
  - (B) TYPE: Amino Acid
  - (D) TOPOLOGY: Linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:106:

Thr Gly Gly Asn Met Lys Asp Ile Trp Arg Ser Glu Leu Tyr Lys
1 5 10 15

Tyr Lys Val Val Arg Ile Glu Pro Leu Ser Val Ala Pro Thr Lys
20 25 30

Ala Arg Arg His Thr Val Ala Arg Gln Lys Asp Arg Gln Lys Arg
35 40 45

Ala Ala Phe Gly Leu Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala
50 55 60

Ala Gly Ser Thr Met Gly Ala Ala Ala Val Thr Leu Thr Val Gln
65 70 75

Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Asn Asn Leu 80 85 90

Leu Lys Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Ser Ile 95 100 105

Trp Gly Val Lys Gln Leu Gln Ala Arg Leu Leu Ala Val Glu Arg
110 115 120

Tyr Leu Gln Asp Gln Gln Ile Leu Gly Leu Trp Gly Cys Ser Gly
125 130 135

Lys Ala Val Cys Tyr Thr Thr Val Pro Trp Asn Asn Ser Trp Pro 140 145 150

Gly Ser Asn Ser Thr Asp Asp Ile Trp Gly Asn Leu Thr Trp Gln
155 160 165

Gln Trp Asp Lys Leu Val Ser Asn Tyr Thr Gly Lys Ile Phe Gly
170 175 180

Leu Leu Glu Glu Ala Gln Ser Gln Gln Glu Lys Asn Glu Arg Asp 185 190 195

Leu Leu Glu Leu Asp Gln Trp Ala Ser 200 204

- (2) INFORMATION FOR SEQ ID NO:107:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 30 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:107:

Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His Ser

1 5 10 15

Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu
20 25 30

- (2) INFORMATION FOR SEQ ID NO:108:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 36 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:108:

Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln
1 5 10 15

Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala 20 25 30

Ser Leu Trp Asn Trp Phe 35 36

- (2) INFORMATION FOR SEQ ID NO:109:
  - (i) SEQUENCE CHARACTERISTICS:



(A) LENGTH: 46 amino acids

(B) TYPE: Amino Acid

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:109:

Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Xaa Leu Ile 1 5 10 15

Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu
20 25 30

Gln Glu Leu Clu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp
35 40 45

Phe 46

- (2) INFORMATION FOR SEQ ID NO:110:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 46 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:110:

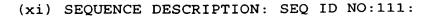
Trp Leu Gln Trp Asp Lys Glu Ile Ser Asn Tyr Thr Xaa Ile Ile 1 5 10 15

Tyr Asn Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu 20 25 30

Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Asn Leu Trp Asn Trp
35 40 45

Phe 46

- (2) INFORMATION FOR SEQ ID NO:111:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 46 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear



Trp Met Gln Trp Asp Arg Glu Ile Ser Asn Tyr Thr Asp Thr Ile
1 5 10 15

Tyr Arg Leu Leu Glu Asp Ser Gln Asn Gln Gln Glu Arg Asn Glu
20 25 30

Lys Asp Leu Leu Ala Leu Asp Ser Trp Lys Asn Leu Trp Asn Trp
35 40 45

Phe 46

- (2) INFORMATION FOR SEQ ID NO:112:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 46 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:112:

Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Gly Leu Ile 1 5 10 15

Tyr Ser Leu Ile Glu Glu Ser Gln Ile Gln Gln Glu Lys Asn Glu 20 25 30

Lys Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp
35 40 45

Phe 46

- (2) INFORMATION FOR SEQ ID NO:113:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 40 amino acids
    - (B) TYPE: Amino Acid
    - (D) TOPOLOGY: Linear
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:113:



Trp Ile Glu Trp Glu Arg Glu Ile Ser Asn Tyr Thr Asn Gln Ile
1 5 10 15

Tyr Glu Ile Leu Thr Glu Ser Gln Asn Gln Gln Asp Arg Asn Glu 20 25 30

Lys Asp Leu Leu Glu Leu Asp Lys Trp Ala 35